

MISSION OPERATIONS DIRECTORATE FLIGHT DIRECTOR OFFICE



STS-105/ISS-7A.1 Mission Summary Flight Readiness Review

DA8/Mark Ferring

August 1, 2001

Shuttle Overview

- OV-103 Discovery
- Crew (with crew exchange)

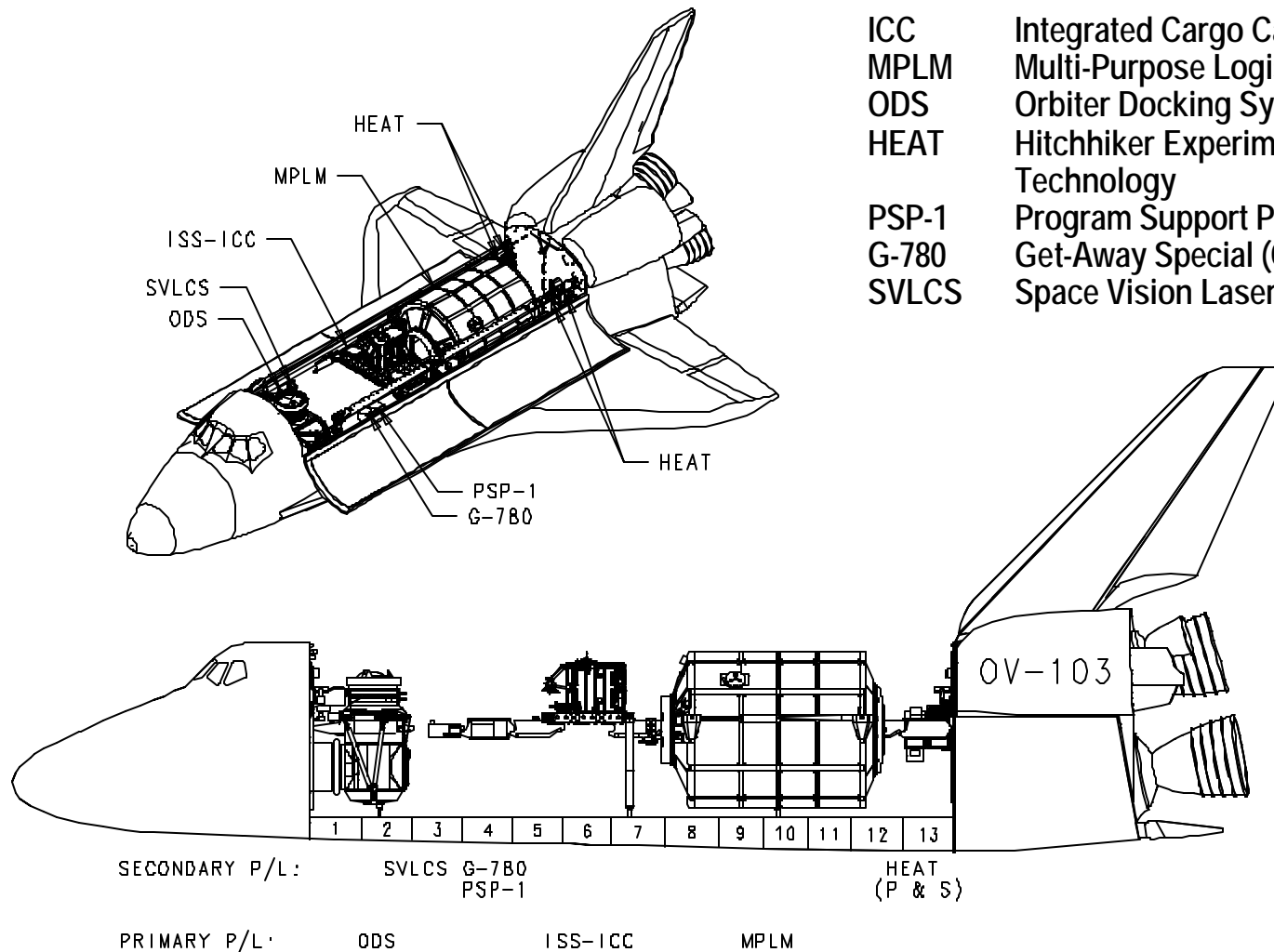
| | | | |
|---------|----------------|-----------|------------------------|
| CDR | Scott Horowitz | Exp 3 CDR | Frank Culbertson (Up) |
| PLT | C.J. Sturckow | PLT | Vladimir Deshurov (Up) |
| MS1/EV2 | Pat Forrester | Flt Eng | Mikhail Tyurin (Up) |
| MS2/EV1 | Dan Barry | Exp 2 CDR | Yuri Usachev (Dn) |
| | | Flt Eng | James Voss (Dn) |
| | | Flt Eng | Susan Helms (Dn) |

- Launch Date 8/9/01
- Launch Time 21:38 GMT (17:38 EDT)
- Launch Window Dur 10 min
- APM 1656 lbs
- Mission Duration 12 + 0 + 2
- Orbiter Software OI 28
- Launch, RTLS Light
- EOM Light
- TAL: ZZA, MRN Dark
- Landing (~11:19:30 MET) 8/21/01 17:17 GMT (13:17 EDT)

Shuttle Overview

- Propulsive Consumables Summary
 - OMS Load/Margin 23300/470
 - ARCS Load/Margin 4970/70
 - FRCS Load/Margin 1912/75
 - 2 hrs config 4 reboost/.5 hr config 3 reboost
 - Mean RNDZ, 2-2-2 D/O protection and no extra mated hold
- Non-Propulsive Consumables Summary
 - Cryo H2 (# tanks/Margin/Launch hold) 5/40.7/118.6
 - Cryo O2 (# tanks/Margin/Launch hold) 5/150.1/150.7
 - N2 (#tanks/Margin) 6/8
- LiOH 49 cans (covers EOM + 2) { 14 stowed in MPLM }

Payload Bay Configuration



Mission Summary

- Primary objectives
 - Rotate Expedition crews, perform crew handover
 - Transfer critical cargo (MPLM, middeck)
- Secondary objectives
 - Install Early Ammonia Servicer (EAS)
 - EVA 1 out of Shuttle airlock
 - Transfer payload equipment including Express racks 4 and 5
 - All Lab rack slots will be filled after this mission
 - Install Materials ISS experiment (MISSE)
 - EVA 1
 - Install S0 Launch to Activation cables
 - EVA 2 out of Shuttle airlock
 - Perform Dreamtime activities
 - SIMPLESAT deploy

Mission Summary

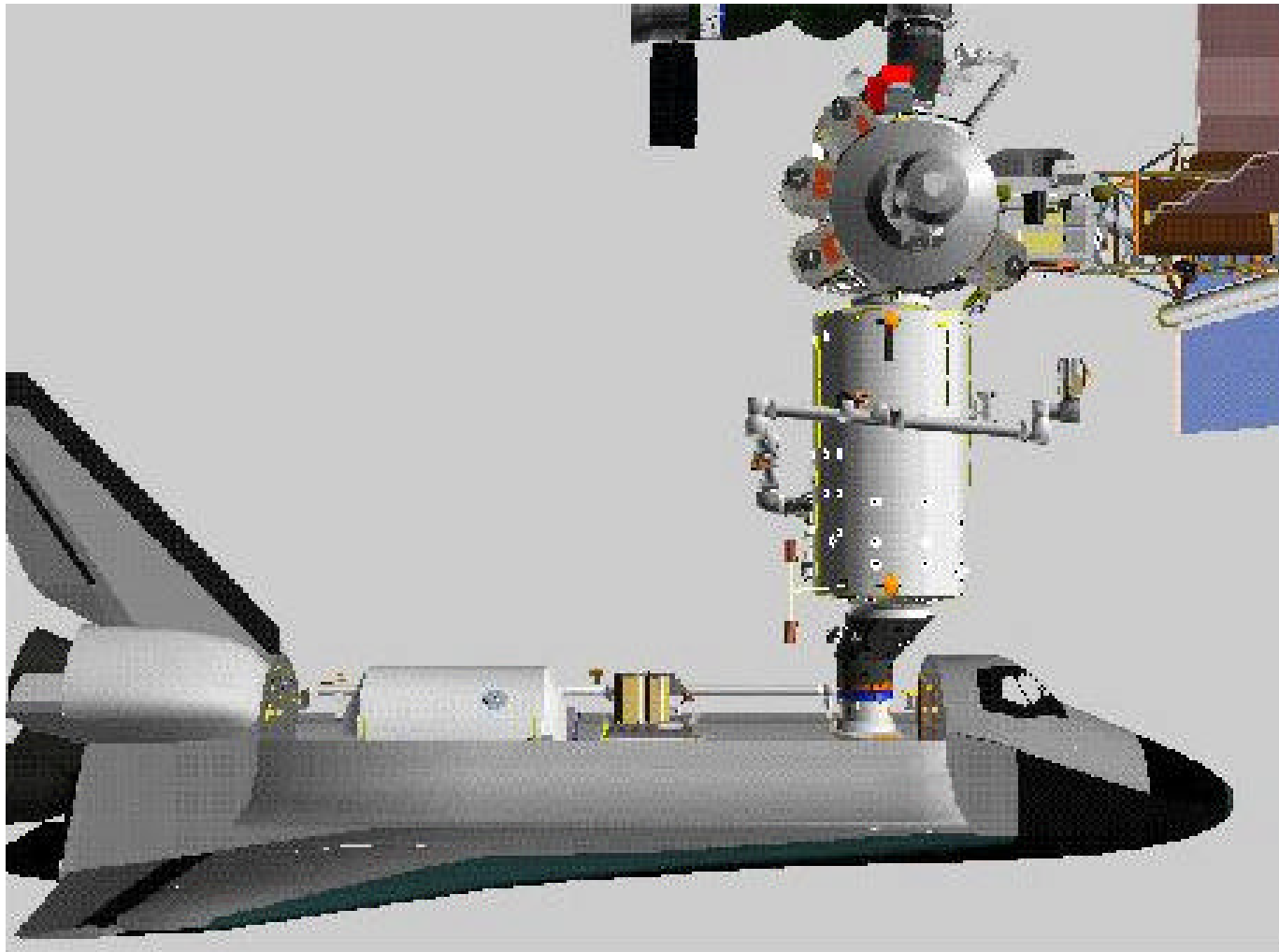
- During the stage:
 - Prepare for:
 - Progress departure/arrival
 - Docking compartment arrival and checkout
 - Soyuz move and arrival
 - 3 Orlan EVA's to prepare Docking Compartment and perform payload activities
- Significant mission firsts – use of SSRMS to back up SRMS for MPLM and EVA ops

Mission Overview

- FD 1
 - Launch (5:38p EDT)
 - MPLM check

- FD 2
 - SRMS checkout
 - Orbiter Docking System Checkout
 - OSVS checkout
 - MPLM check

Docked Configuration

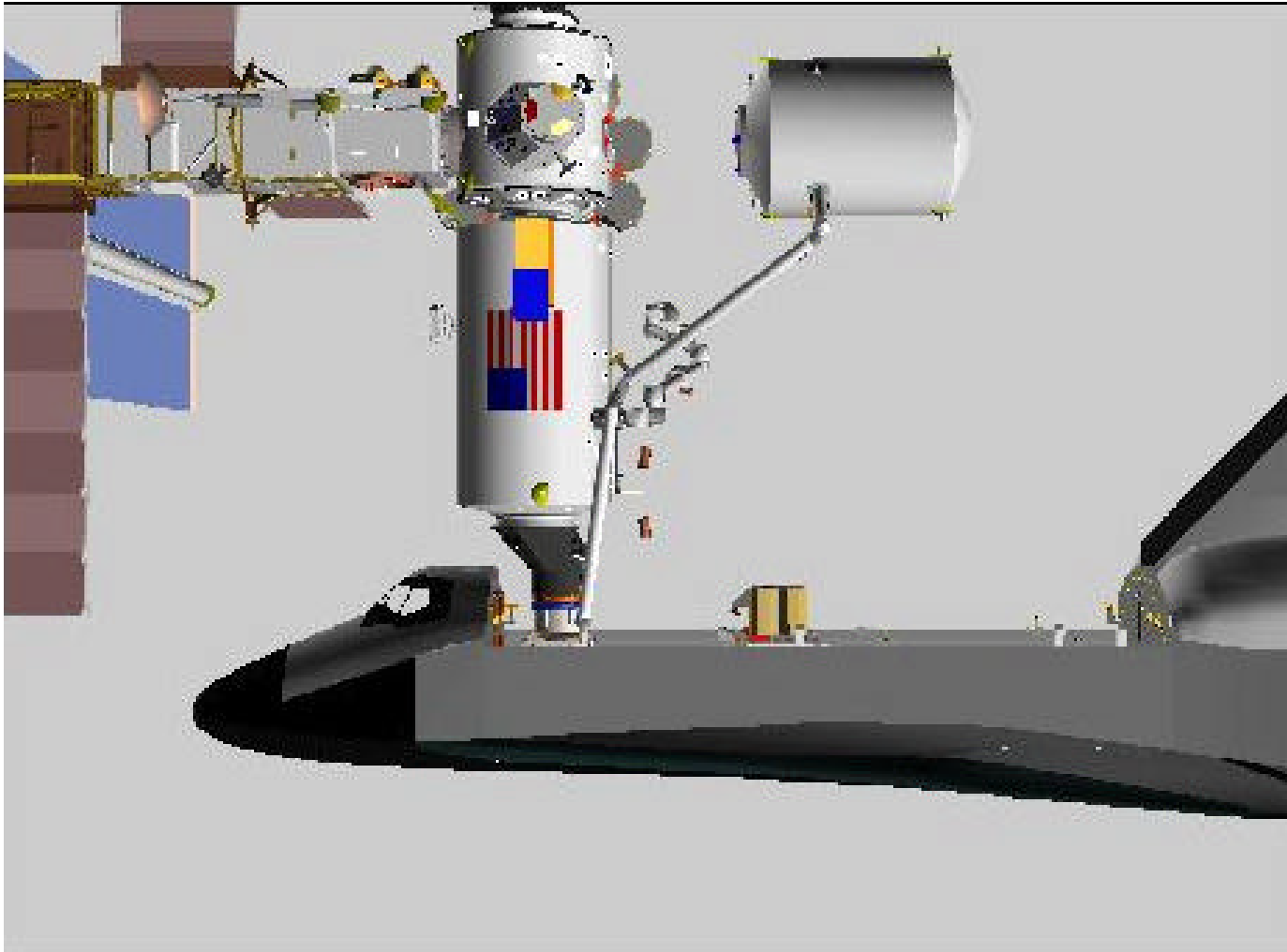


Mission Overview

- FD 3
 - ISS maneuver to docking attitude, feather arrays
 - + Vbar rendezvous and docking
 - Crew safety briefing once hatches opened
 - EMU setup
 - MPLM check

- FD4
 - MPLM mate to ISS, activate
 - Soyuz seat liner transfer
 - Once complete, Exp 3 crew becomes the ISS crew
 - Middeck transfer
 - Powered payload exchange
 - Handover
 - Load SM software from CD ROM to Control Post hard drive (Plan in work)

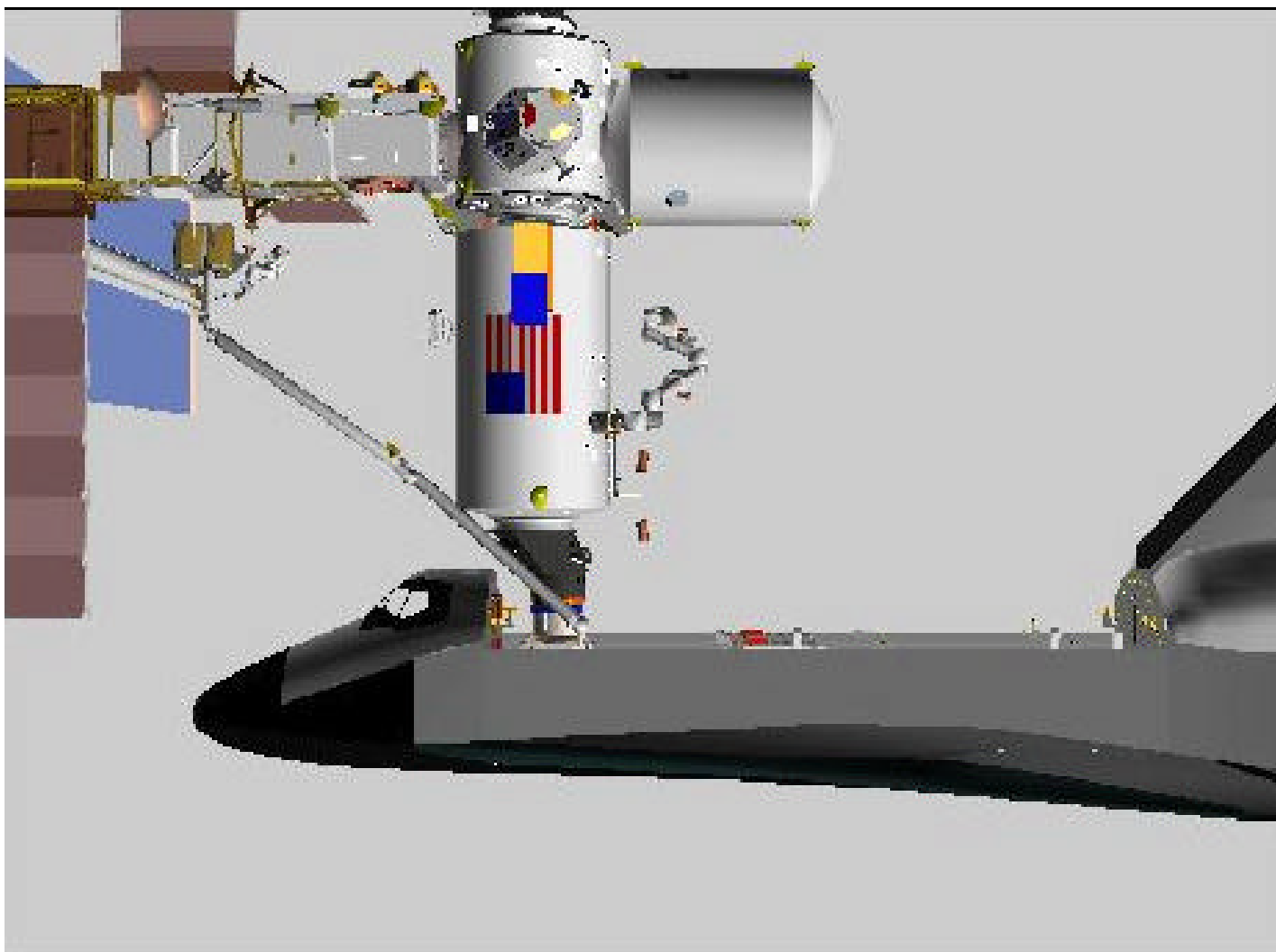
MPLM install



Mission Overview

- FD5
 - Handover
 - Transfer
 - Express 4 and 5
 - Load SM software in 3 Terminal Computers (GNC) and 3 Central computers (Plan in work)
 - Shuttle takes attitude control
 - Reboost
- FD 6
 - Handover
 - Transfer
 - Complete SM software load (Plan in work)
 - EVA prep
 - Reboost

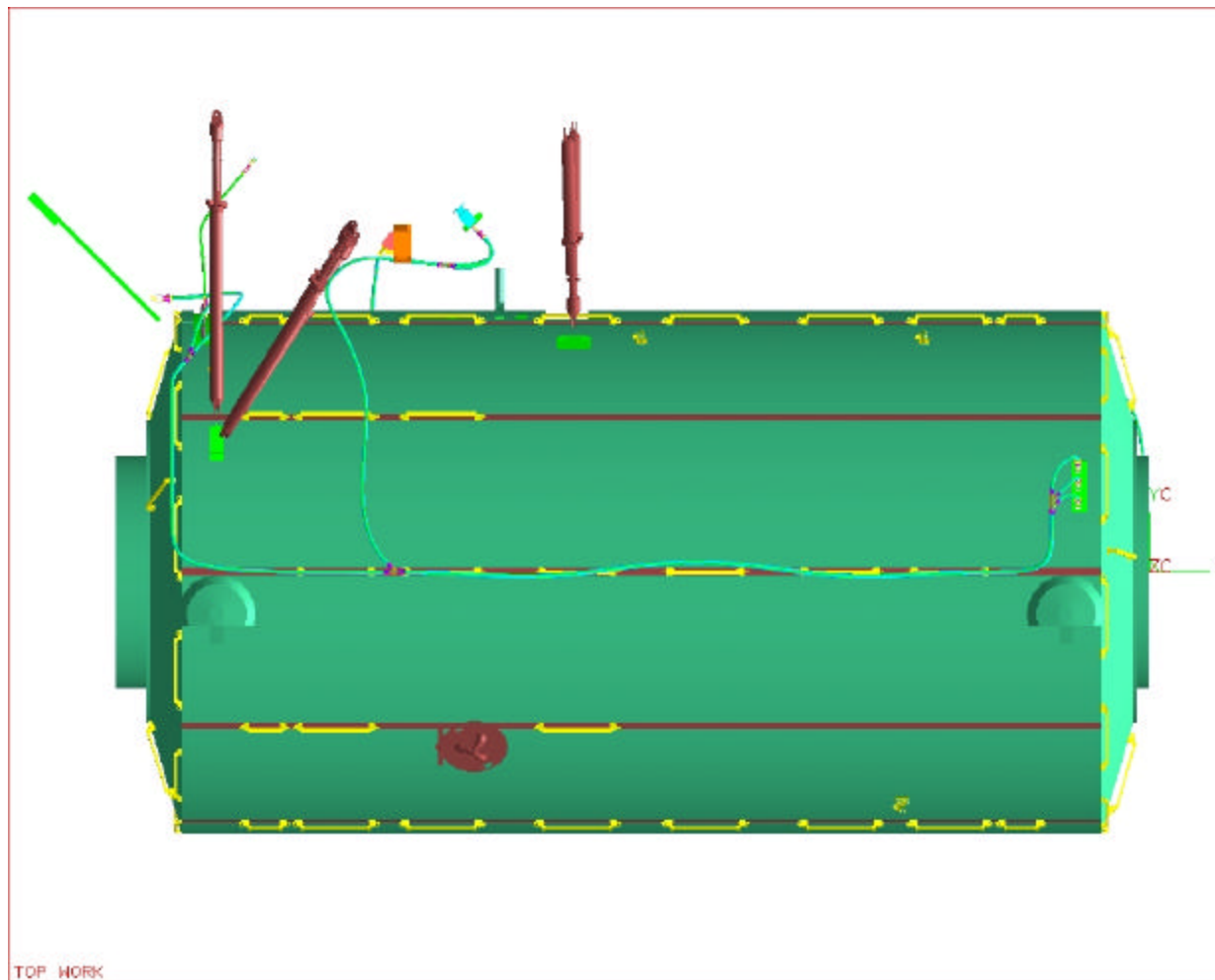
EAS Install Position



Mission Overview

- FD7
 - EVA 1
 - EAS install, route cables, activate heaters
 - MISSE install and deploy on airlock and HPGT
 - Exp 3 crew transfer
 - Hatches closed
- FD 8
 - Handover
 - Transfer
 - EVA prep
 - Reboost

S0 Cable Install



Starboard Side

STS-105/7A.1 FRR/Mission Summary

Mission Overview

- FD 9
 - EVA 2 S0 cable install
 - Potential 8A getaheads (APFR and tool relocation)
 - Exp 3 transfer complete
 - Hatches closed
 - CBM CPA install
- FD 10
 - MPLM berth to Shuttle
 - Space Vision Laser System checkout during berthing
 - TVIS motor R&R
 - Dreamtime
- FD 11
 - Undock
 - Flyaround
 - Simplesat deploy
 - Cabin stow
 - MPLM check

Mission Overview

- FD 12
 - FCS checkout
 - Cabin stow
 - Recumbant seat install
 - MPLM check
 - Off duty

- FD 13
 - Landing 11/19:37 MET (1317 EDT)

MISSION OPERATIONS DIRECTORATE FLIGHT DIRECTOR OFFICE



STS-105/STAGE 7A.1/ISS INCREMENT OPERATIONS

FLIGHT READINESS REVIEW

August 1, 2001

DA8/N. W. Hale

Agenda

| | |
|--|------------------------|
| • Shuttle Flight Software | No Issues |
| • Station Flight Software | No Issues |
| • Flight Design & Ascent Overview | No Issues* |
| • Flight Procedures Shuttle/Station | To Be Presented |
| • Joint Operations Integrated Procedures | No Issues |
| • Houston/Moscow Support Groups | No Issues |
| • Crew Training | No Issues |
| • Flight Controller Training | No Issues |
| • Significant Flight Rules | To Be Presented |
| • Special Topics | None |
| • Open Work | To Be Presented |
| • Network | To Be Presented |
| • USA Flight Operations | To Be Presented |
| • Readiness Statements | Included |
| * Back-Up Material Included | |

Flight Procedures Shuttle/Station

- ISS Emergency Procedure book additions for arrival of Russian docking compartment during the 7A.1 stage still in work. Working resolution/delivery with the Russians.
- The delay experienced during STS-104/7A in finding and executing the procedure for toxic spill (EMU battery) to be corrected with extra emphasis during crew training. STS-105 crew has been briefed during L-10 day crew physical.

STS-105/7A.1 Significant Flight Rules

- Flight-Specific Joint Rules
 - EAS heater power and LTA thermal constraints defined
 - Mission priorities defined
 - Prop and non-prop priorities defined
 - Category 1 and 2 objectives are the only higher priorities over preserving the day between undock and deorbit
 - Simplesat deploy motor inhibit requirements defined
- Shuttle Only
 - Defined filled CWC stowage management
 - FCL 2 Radiator out temp lower limit raised due to loop 2 water content
 - Simplesat deploy constraints defined
- ISS Only and Stage Rules
 - Defined stage contingency EVA's Exp 3 trained to perform
 - Defined inhibits for mate/demate of Node/MPLM power jumper for off-nominal operations

STS-105/7A.1 Open Items

- Complete planning for SM software load during docked phase
 - Required to support the Docking Compartment (Launch 9/15/01)
- Resolve emergency procedure pub issues
 - Including any effects of SM software load on auto responses

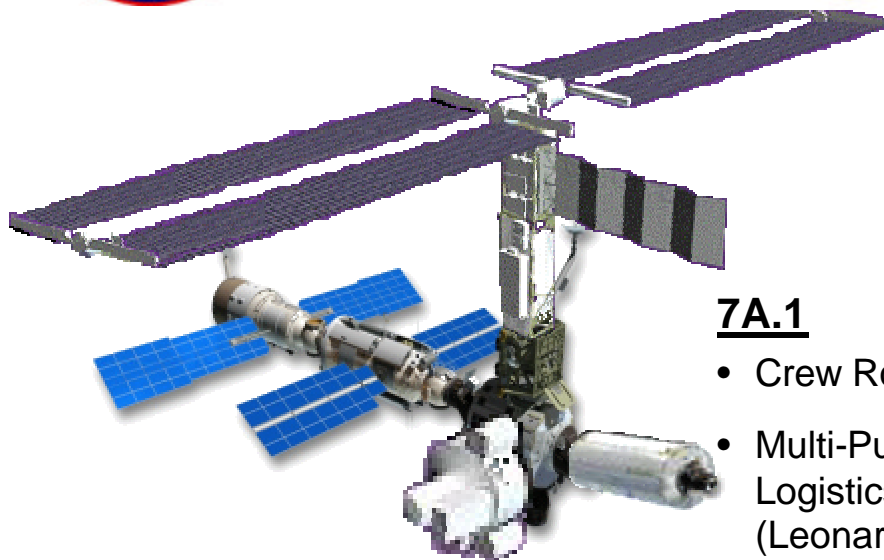


Space Operations Management Office



STS-105 ISS 7A.1 Flight Readiness Review

Networks



7A.1

- Crew Rotation
- Multi-Purpose Logistics Module (Leonardo)

Agenda

- Integrated Network Activity
- Other Network Supported Launches
- Significant Changes
- Configuration Management

Ted Sobchak
Network Director
GSFC Code 450
August 1, 2001



STS-105/ISS 7A.1 FRR Mission Services



Other Network Supported Launches

At present there are no Network conflicts with launches scheduled around the STS-105 timeframe

- **Titan IV/B-31: August 6 (Pre-mission)**
- **Taurus/QuickToms: August 21, planning move to Sept 1 (Western Range, post-landing)**
- **Atlas II/MLV-10: August 26 (Post-mission)**

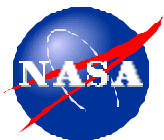


STS-105/ISS 7A.1 FRR Mission Services



Significant Changes

- **The Network remains in a mission freeze following STS-104 WOW**
- **SN**
 - **ISS Ku-Band System radiating early during acquisition sequence causing false locks at WSC High Data Rate Receiver (HDR)**
 - **Interim Software delivered on June 22 at WSC to prevent HDR False Lock. Problem has not recurred since delivery.**
 - **Formal software delivery will be evaluated after STS-105**
 - **Anticipate a modification to the ISS acquisition process**

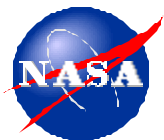


STS-105/ISS 7A.1 FRR Mission Services



Significant Changes

- **NISN**
 - **PDL Command Line: Carrier replaced Mux cards and chassis at KSC**
 - **Carrier will staff the KSC facility during launch count**
 - **Continue with 27 voice loops at lower compression rate (24 kbps)**
 - **ISS Video Distribution from JSC (GSTAR4) terminated June 30.**
 - **Immediate Action:**
 - **Critical SSRMS activities during ISS 7A and 7A.1 will share Transponder 9 with NASA TV**
 - **Parallel Activity:**
 - **NISN is implementing a video over IP fiber solution for re-worked requirements to MSFC (2 Channels) and CSA (1 Channel)**



STS-105/ISS 7A.1 FRR Mission Services



Significant Changes

- **AFSCN/RTS**
 - **Scheduled down times for two RTS sites for upgrades and maintenance will not impact mission support.**
- **DOD Radar**
 - **One radar (MLAC) scheduled down for modification. Substitute radar (CNVC) scheduled.**



Space Operations Management Office



Certificate of Space Operations Management Office Readiness

Pending completion of flight readiness preparations, remaining standard work and closure of all action items, SOMO dedicated elements and all CSOC resources are ready to support the STS-105/11th ISS Flight (7A.1) - MPLM (Leonardo)

(Original signed by)

S. C. Newberry **Date**
Director, Space Operations Management Office
Johnson Space Center

(Original signed by)

G. Morse **Date**
Manager, Space Operations Services
Johnson Space Center

(Original signed by)

D. Tighe **Date**
CSOC Program Manager

Presenter:

L. Bourgeois

Organization/Date:

Flt Ops/Date:08/01/01

STS 105/ISS 7A.1 Flight Readiness Review 8/01/01

USA Flight Operations

AGENDA

Presenter:

L. Bourgeois

Organization/Date:

Flt Ops/Date:08/01/01

- Requirements Compliance
- Facilities Readiness
- Flight Design Readiness
- Flight Preparation Product Readiness
- Training & Certification
- Flight Control Readiness
- Out of Family - None
- Special Topics - None
- CoFR Statement

REQUIREMENTS COMPLIANCE

Presenter:

L. Bourgeois

Organization/Date:

Flt Ops/Date:08/01/01

- Requirements
 - SSP Requirements Documentation Summary
 - Flight Preparation Requirements Book (FPRB),
 - Generic - CQ
 - Flight Specific - 105MEBASE-Z
 - ISS Requirements Documentation Summary
 - IIDP, 3-FIN-A
 - Waivers & Exceptions
 - None
 - Significant non standard open work
 - None

FACILITIES READINESS

Presenter:

L. Bourgeois

Organization/Date:

Flt Ops/Date:08/01/01

- Mission Control Center (MCC)
 - Significant Software changes since STS 104
 - MOC Software version –105B1A
 - MIDDS Application S/W version – 13.5
 - Significant Hardware Changes
 - None
 - Significant Anomalies
 - None

FACILITIES READINESS

Presenter:

L. Bourgeois

Organization/Date:

Flt Ops/Date:08/01/01

- Integrated Planning System (IPS)
 - Significant platform software changes since last FRR
 - None
 - Significant Hardware Changes
 - None
 - Significant Anomalies
 - None
 - Significant non standard open work
 - None

FLIGHT DESIGN READINESS

Presenter:

L. Bourgeois

Organization/Date:

Flt Ops/Date:08/01/01

- Design meets all NASA requirements (FDRD, FRD, etc.)
 - Limit Exceedances - none
 - Entry thermal analysis complete - no violations
- All anomalies dispositioned
 - Significant Anomaly Reports - none
- Significant mission firsts - none
- Significant non standard open work - none

FLIGHT PREP PRODUCT READINESS

Presenter:

L. Bourgeois

Organization/Date:

Flt Ops/Date:08/01/01

- Products
 - Shuttle Flight Design I-load patches:
 - Updates primarily due to Launch date change and mass properties updates
 - Shuttle consumables products
 - Delivered or on schedule
 - Significant non standard open work
 - None
- Procedures
 - FDF and ODF Status – standard open work remains

TRAINING & CERTIFICATION

Presenter:

L. Bourgeois

Organization/Date:

Flt Ops/Date:08/01/01

- Crew Training
 - All training has been or is scheduled to be completed prior to launch
- Integrated Training - on schedule
- All Shuttle instructor and SMTF facility operations personnel are trained and certified

FLIGHT CONTROL READINESS

Presenter:

L. Bourgeois

Organization/Date:

Flt Ops/Date:08/01/01

- Real-time support software status
 - All user applications that support real-time Ops are certified and incorporated into the Ops baseline
 - Significant Anomaly Reports - none
 - Significant non standard open work - none
- Personnel
 - All USA accountable flight controllers are certified for flight
 - Significant non-standard open work - none

STS-105/ISS-7A.1 Certification of Flight Readiness

Presenter:

L. Bourgeois

Organization/Date:

Flt Ops/Date:08/01/01

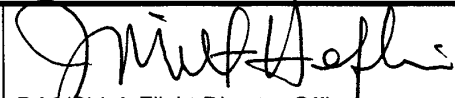
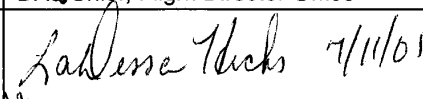
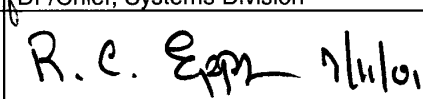

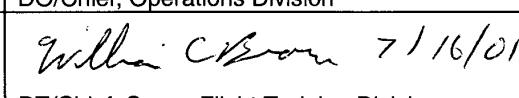
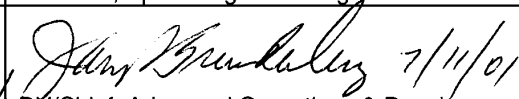
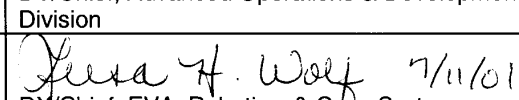
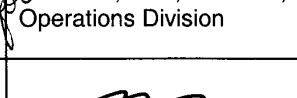

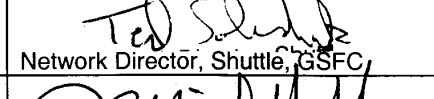
- The USA Flight Operations FRR, NASA MOD FRR, and USA SFOC Pre-FRR have been completed
- All Contractor Accountable Functions (CAF) have been completed, or are scheduled for completion, in accordance with NASA requirements and the applicable portions of the Space Flight Operations contract Flight Preparation Process Plan (NSTS 08117, section 8.5.18 and appendix "R").
- All required products have been or are scheduled to be delivered per requirements.
- All Facilities have been configured and are ready for mission support.
- All CAF personnel are trained and certified or will be trained and certified prior to flight.
- Flight crew has been trained.
- There are no open issues.
- Pending completion of the defined open work.

**USA FLIGHT OPERATIONS IS READY
TO SUPPORT THE STS 105/ISS 7A.1 MISSION**




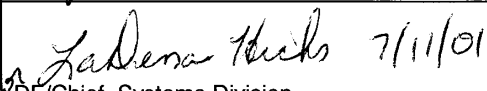
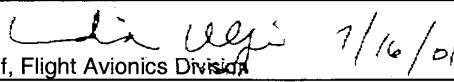

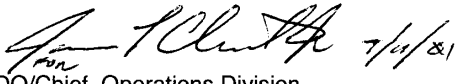
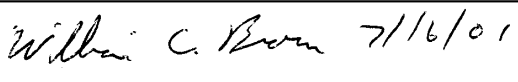
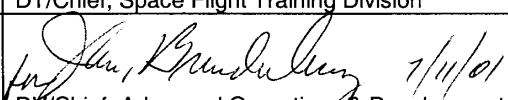
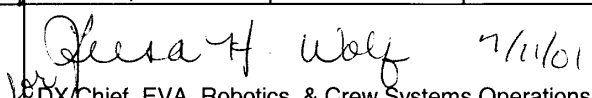

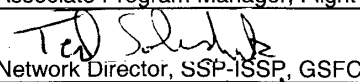

L. S. Bourgeois
Director Mission Operations, Flight Operations

MISSION OPERATIONS DIRECTORATE
SHUTTLE CERTIFICATE OF FLIGHT READINESS (CoFR)
FLIGHT: STS-105/7A.1 REQUIREMENTS

| | |
|---|---|
| Critical Processors/Applications; Non-Crit Processors/Applications; Flight Rules: EMCC: Trng-MCC /POCC; FTP-New Operations; Anomaly-Proc; Ex/AI from Prior Reviews; CIL/Hazards; No Constraints; Level II Actions; Mission Requirements; Exception Resolution; CMD Proc; FPPP Requirements Met; Contractor Process Insight |  DA8/Chief, Flight Director Office |
| Crit Processors/Applications; Non-Crit Processors/Applications; FDF; EMCC; TRNG-MCC/POCC; LCC; FTP-New Ops; Flight Anomaly Resolution; Anomaly-Proc; Ex/AI from Prior Reviews; CIL/Hazards; No Constraints; Level II Actions; Mission Requirements; Engineering Drawings; CMD Proc; FPPP Requirements Met; Contractor Process Insight |  DF/Chief, Systems Division |
| Crit Processors/Applications; Non-Crit Processors/Applications; FDF; EMCC; RECON-Flight S/W (MMU); TRNG-MCC/POCC; FTP-New Ops; Flight Anomaly Resolution; Anomaly-Proc; Ex/AI from Prior Reviews; No Constraints; Level II Actions; Mission Requirements; CMD Proc; FPPP Requirements Met; Contractor Process Insight |  DM/Chief, Flight Design and Dynamics Division |
| Crit Processors/Applications; Non-Crit Processors/Applications; FDF; FDF Manage; EMCC; PGSC; TRNG-MCC/POCC; FTP-New Ops; Flight Anomaly Resolution; Anomaly-Proc; Ex/AI from Prior Reviews; CIL/Hazards; No Constraints; Level II Actions; Mission Requirements; Engineering Drawings; CMD Proc; FPPP Requirements Met; Contractor Process Insight |  DO/Chief, Operations Division |
| EX/AI from Prior Reviews; No Constraints; Level II Actions; Mission Requirements; FPPP Requirements Met; Contractor Process Insight |  DT/Chief, Space Flight Training Division |
| FPPP Requirements Met; Contractor Process Insight |  DV/Chief, Advanced Operations & Development Division |
| FAC-NBL; FAC-SVMF; FDF; TRNG-Crew Trng; TRNG-MCC/POCC; TRNG-EVA/MARS; LCC; FTP-New Ops; Flight Anomaly Resolution; Anomaly-Proc; Ex/AI from Prior Reviews; CIL/Hazards; No Constraints; Level II Actions; Mission Requirements; Engineering Drawings; CMD Proc; EVA Hardware Integration; Contractor Process Insight |  DX/Chief, EVA, Robotics, & Crew Systems Operations Division |
| FAC-MCC; FAC-Network Interface; FAC-SMS; FAC-SPF; FAC-IPS ; Crit Processors/Applications; Non-Crit Processors/Applications; FD-Trajectory; FD-Consumables; FD-PDRS; FD-Analyst Cert; FD-CTF; FDF Manage; EMCC; RECON-STAR/MASTII/CD ROM Products; RECON-MCC; TRNG - Crew Trng; TRNG-MCC/POCC; TRNG-SMS; FTP-New Ops; Flight Anomaly Res; Anomaly-Proc; Ex/AI from Prior Reviews; CIL/Hazards; No Constraints; Level II Actions; Mission Requirements; Engineering Drawings; Exception Resolution; CMD Proc; FPPP Requirements Met |  Associate Program Manager, Flight Operations, SFOC |
| EMCC; NETWORK; Flight Anomaly Resolution; Anomaly-Proc; Ex/AI from Prior Reviews; No Constraints; Level II Actions; FPPP Requirements Met |  Network Director, Shuttle, GSFC |
| |  Mission Operations Director |

MISSION OPERATIONS DIRECTORATE
ISS CERTIFICATE OF FLIGHT READINESS (CoFR)
FLIGHT/INCREMENT: STS-105/7A.1 AND SUBSEQUENT INCREMENT OPERATIONS

ISS REQUIREMENTS

| | |
|--|---|
| Critical Processors/Applications; Non-Crit Processors/Applications; Flight Rules; EMCC; TRNG-MCC/POIC/POCC; JOP-New Operations; Anomaly-Proc; Ex/Al from Prior Reviews; CIL/Hazards; No Constraints; Program Actions; Mission Requirements; Exception Resolution; CMD Proc; Contractor Process Insight |  DA8/Chief, Flight Director Office |
| Crit Processors/Applications; Non-Crit Processors/Applications; ODF/SODF; EMCC; TRNG-MCC/POIC/POCC; LCC; JOP-New Ops; Flight Anomaly Resolution; Anomaly-Proc; Ex/Al from Prior Reviews; CIL/Hazards; No Constraints; Program Actions; Mission Requirements; CMD Proc; EVA Hdwr; Contractor Process Insight |  DF/Chief, Systems Division |
| EX/Al from Prior Reviews; No Constraints; Program Actions; Mission Requirements; Contractor Process Insight |  DL/Chief, Flight Avionics Division |
| Crit Processors/Applications; Non-Crit Processors/Applications; TRNG-MCC/POIC/POCC; JOP-New Ops; Flight Anomaly Resolution; Anomaly-Proc; Ex/Al from Prior Reviews; No Constraints; Program Actions; Mission Requirements; CMD Proc; FD-Flight Mechanics, FD-Analyst Cert. FD-CTF |  DM/Chief, Flight Design and Dynamics Division |
| Crit Processors/Applications; Non-Crit Processors/Applications; ODF/SODF; ODF/SODF Manage; EMCC; TRNG-MCC/POIC/POCC; JOP-New Ops; Flight Anomaly Resolution; Anomaly-Proc; Ex/Al from Prior Reviews; CIL/Hazards; No Constraints; Program Actions; Mission Requirements; CMD Proc; Contractor Process Insight |  DO/Chief, Operations Division |
| EX/Al from Prior Reviews; No Constraints; Program Actions; Mission Requirements; Contractor Process Insight |  DT/Chief, Space Flight Training Division |
| The SSTF maintains a training load consistent with the last training environment for the increments in progress which can, on demand be loaded and updated to the required onboard configuration for any necessary procedure development; contractor process insight. |  DV/Chief, Advanced Operations & Development Division |
| FAC-NBL; FAC-SVMF; FDF; TRNG-Crew Trng; TRNG-MCC/POCC; TRNG-EVA/MARS; LCC; FTP-New Ops; Flight Anomaly Resolution; Anomaly-Proc; Ex/Al from Prior Reviews; CIL/Hazards; No Constraints; Level II Actions; Mission Requirements; Engineering Drawings; CMD Proc; EVA Hardware Integration; Contractor Process Insight |  DX/Chief, EVA, Robotics, & Crew Systems Operations Division |
| FAC-MCC; FAC-Network Interface; FAC-IPS; Crit Processors/Applications; Non-Crit Processors/Applications; ODF/SODF Fabrication; Flight Anomaly Res; Anomaly-Proc; Ex/Al from Prior Reviews; No Constraints; Program Actions; Mission Requirements; Exception Resolution; CMD Proc |  Associate Program Manager, Flight Operations, SFOC |
| NETWORK; Flight Anomaly Resolution; Anomaly-Proc; Ex/Al from Prior Reviews; No Constraints; Program Actions |  Network Director, SSP-ISSP, GSFC |
| |  Mission Operations Director |

STS-105/7A.1 FLIGHT READINESS STATEMENT



THE MISSION OPERATIONS FLIGHT PREPARATION PROCESS PLAN DOCUMENTED IN NSTS 08117, REQUIREMENTS AND PROCEDURES FOR CERTIFICATION OF FLIGHT READINESS, HAVE BEEN SATISFIED. REQUIRED PRODUCTS AND OTHER RESPONSIBILITIES FOR MISSION OPERATIONS (NSTS 08117, SECTION 8, PARAGRAPH 8.5.7) HAVE BEEN OR WILL BE PRODUCED OR COMPLETED. ALL AREAS ARE READY. MISSION OPERATIONS IS PREPARED TO SIGN THE CERTIFICATE OF FLIGHT READINESS FOR STS-105/7A.1.

A handwritten signature in black ink, appearing to read 'J. M. Heflin', written over a horizontal line.

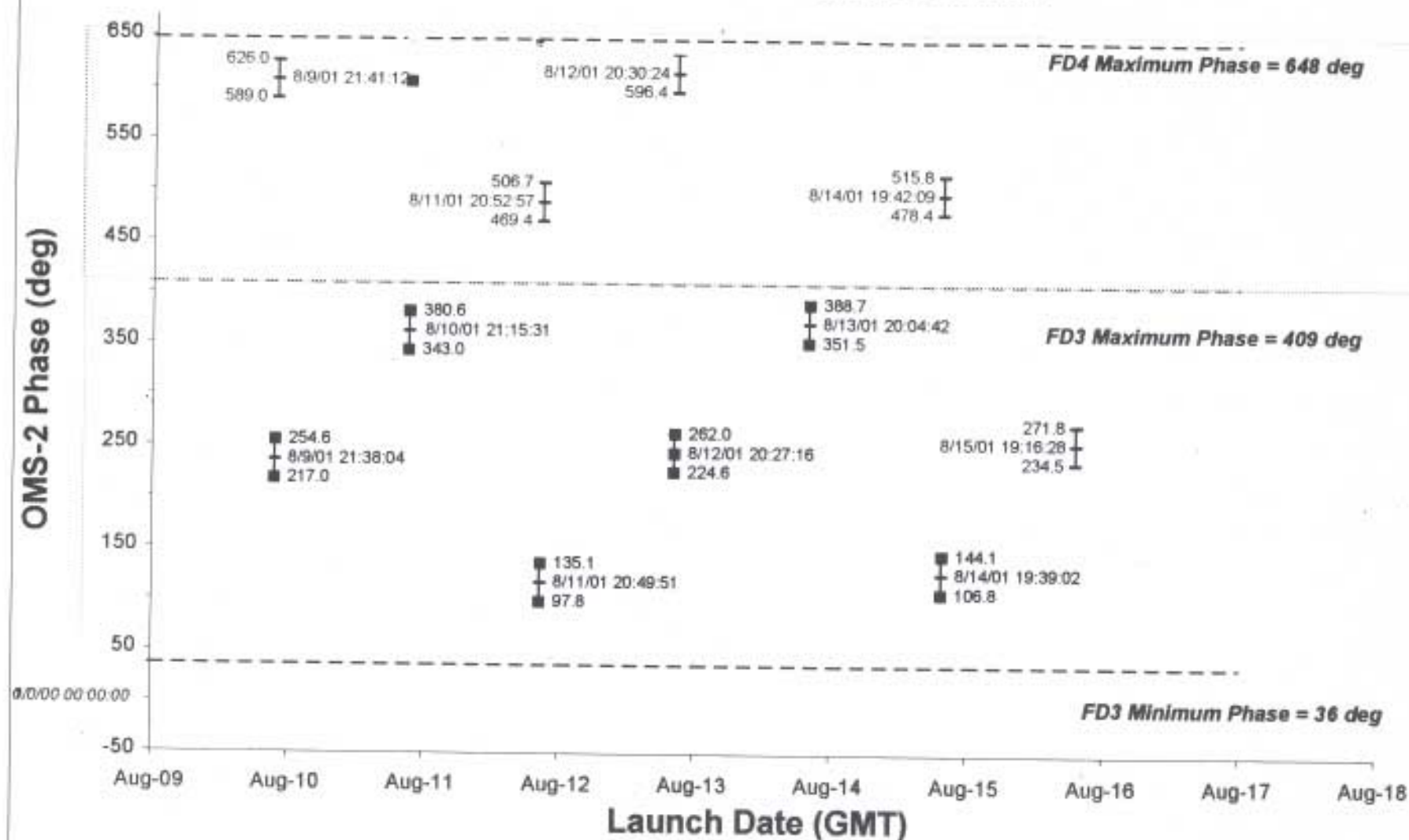
J. M. Heflin
MISSION OPERATIONS DIRECTOR

A handwritten signature in black ink, appearing to read 'C. L. Vermilyea', written over a horizontal line.

C. L. VERMILYEA
VICE PRESIDENT AND ASSOCIATE
PROGRAM MANAGER, FLIGHT
OPERATIONS, SPACE FLIGHT OPERATIONS
CONTRACT

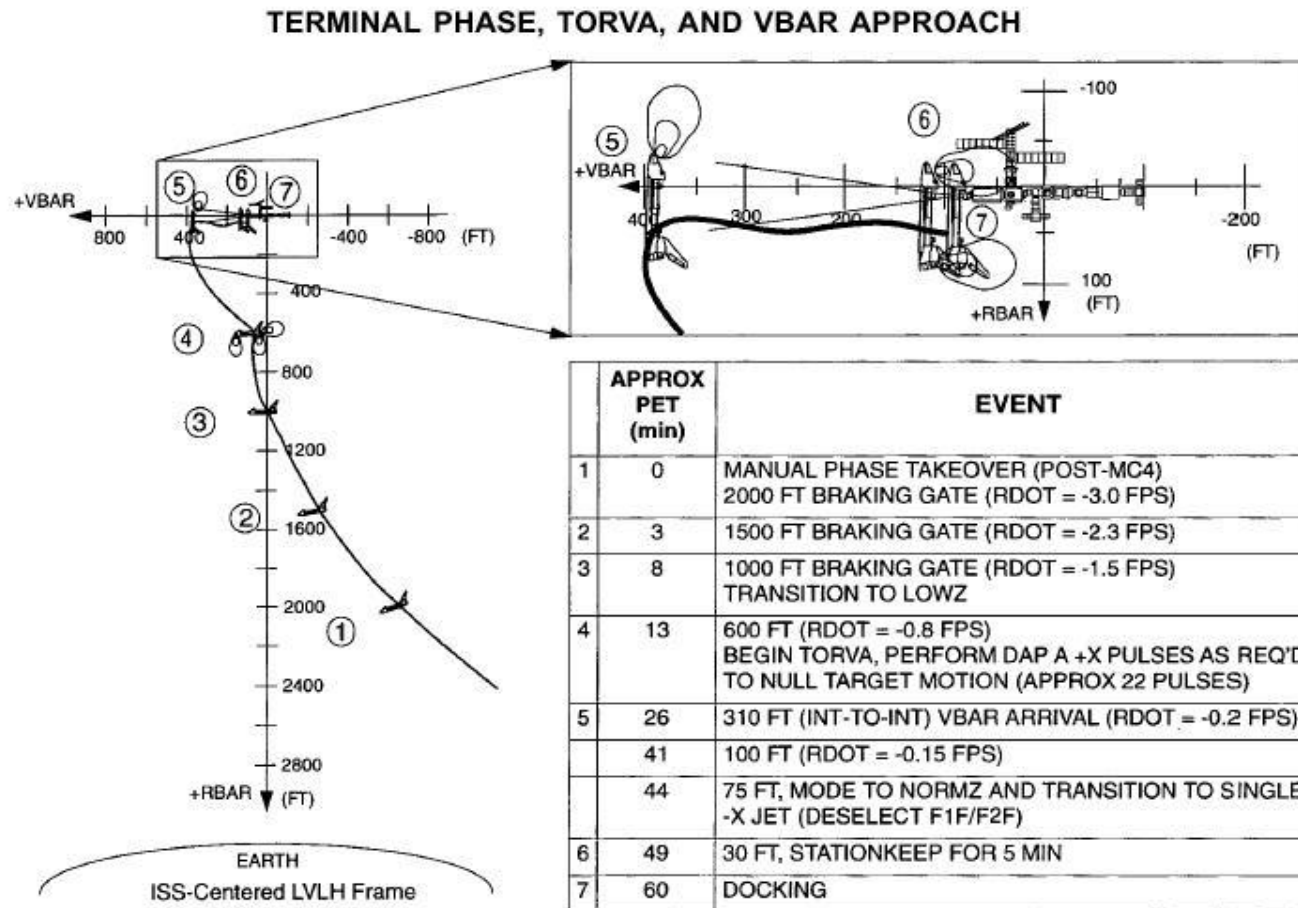
MOD handed copy to
Board & discussed

STS-105/7A.1 Daily Planar Windows 7/27/01 TOPO Vector - August 9 Launch



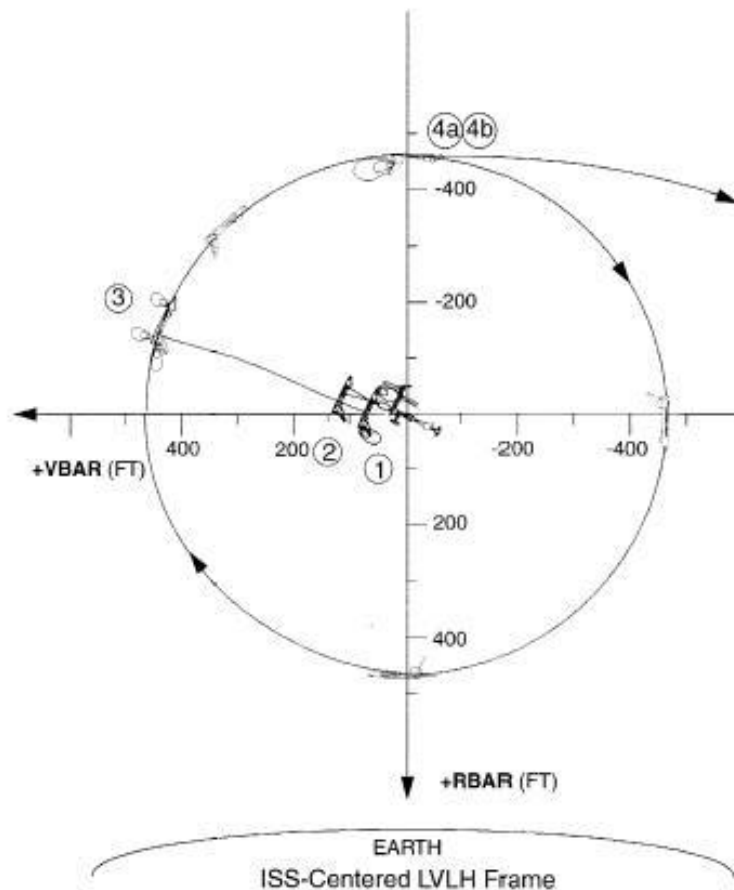
Back-Up Charts

Docking to ISS



Undock

UNDOCKING, TORF, AND FINAL SEPARATION



| | APPROX. PET (min) | EVENT |
|----|-------------------------|--|
| | -3 | ORBITER AND ISS IN FREE DRIFT TO BEGIN UNHOOKING PROCESS IN ISS LVLH MATED TEA ATTITUDE (25,0,0) |
| 1 | 0 | UNDOCKING; AT 2 FT MODE TO LVLH HOLD AND PERFORM 4 DAP B +Z NORMZ BURNS SEPARATED BY 10 SEC; 3 MIN LATER PERFORM +Z NORMZ BURNS OUTSIDE 30 FT TO BUILD TO 0.2 FPS; MAINTAIN CORRIDOR |
| | 4 | OUTSIDE 50 FT, RESELECT -X JETS (F1F, F2F) |
| 2 | 5 | AT 75 FT, MODE TO LOWZ, MANEUVER BACK TO TEA ATTITUDE IN AUTO; MAINTAIN CORRIDOR AND OPENING RATE GREATER THAN OR EQUAL TO 0.2 FPS |
| 3 | 25 | AT 450 FT, NULL RDOT AND INITIATE TWICE ORBITAL RATE FLYAROUND (TORF); MAINTAIN 400 FT < R < 500 FT (CG-TO-CG) |
| 4a | 34 | AT MINUS RBAR: IF PROP AVAILABLE CONTINUE 1 LAP TORF* |
| 4b | 34 or 80 | IF PROP NOT AVAILABLE OR AFTER 1 LAP, PERFORM 3 FPS RETROGRADE +X LOWZ FINAL SEP BURN; INITIATE TARGET TRACK 2 MIN LATER |

Back-Up Charts

STS-105/7A.1 Ascent Overview

- INSERTION ALTITUDE/INCLINATION 122 NM / 51.6 DEG
- FIRST STAGE DESIGN CRITERIA DOLILU II / OPS HIGH Q
- LAUNCH WINDOW OPEN August 9, 2001, 21:32:18 GMT
17:32:18 EDT
- LAUNCH WINDOW CLOSE August 9, 2001, 21:42:19 GMT
17:42:19 EDT
- LANDING TIME (KSC) August 21, 2001, 17:17:00 GMT
13:17:00 EDT
- APM 1656 LBS *

LAUNCH HOLD CAPABILITY INSIDE OF DRAINBACK IS DEPENDENT UPON ACTUAL DOL PERFORMANCE. ABORT COVERAGE HAS SUFFICIENT OVERLAP FROM LIFT-OFF TO MECO.

* 5 minute window, no DOL dispersion reduction

Abort Regions Chart

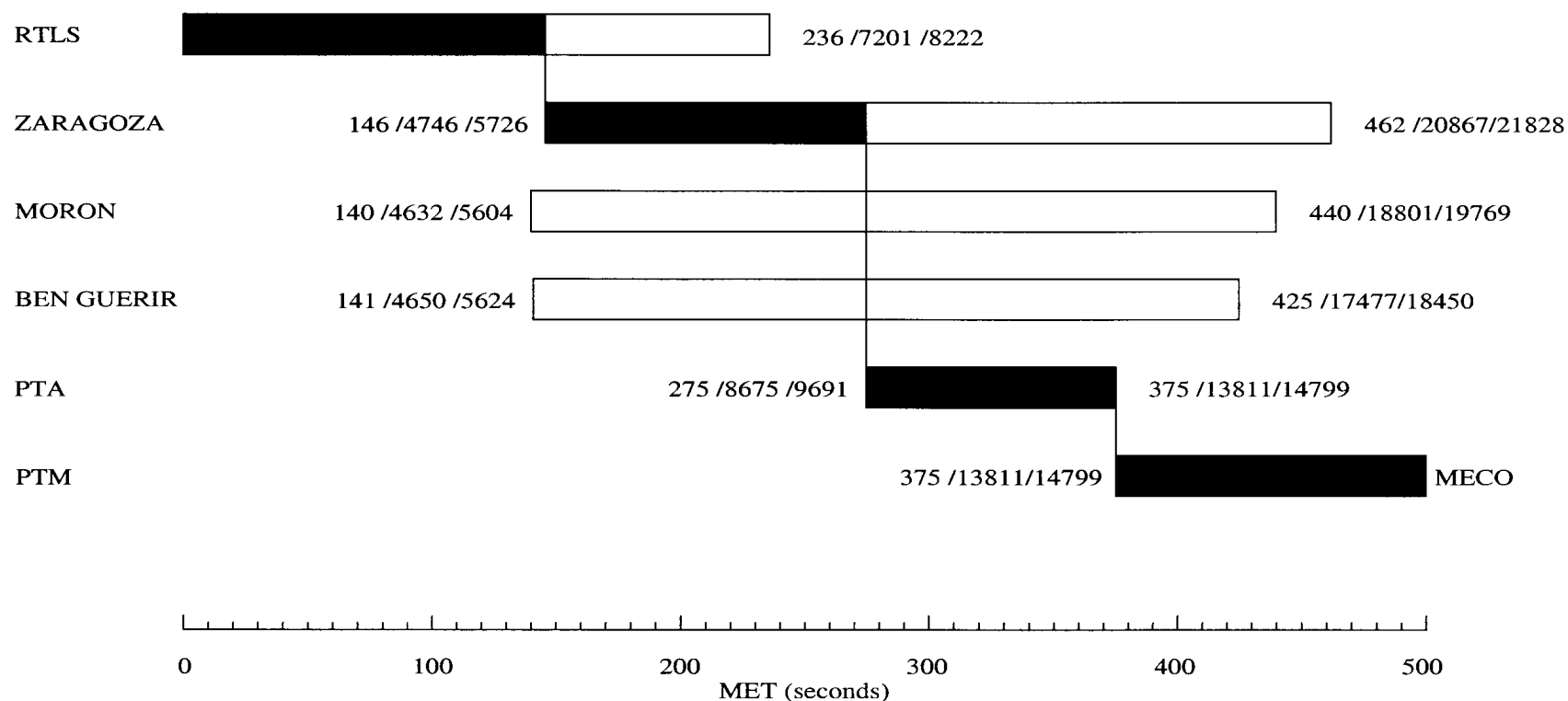
STS-105

STS 105 FRR ABORT REGIONS CHART

TDDP: FRRAF105(003)
Ascent Performance Margin: 2494.0 lbs
Ascent Intact Engineer: Scott Schuh
Date: Wed May 23 21:28:22 CDT 2001

LEGEND
E.O. Time (sec)/Rel. Velocity (fps)/Inert. Velocity (fps)

All data presented on this chart is at the opening of a 5 minute window

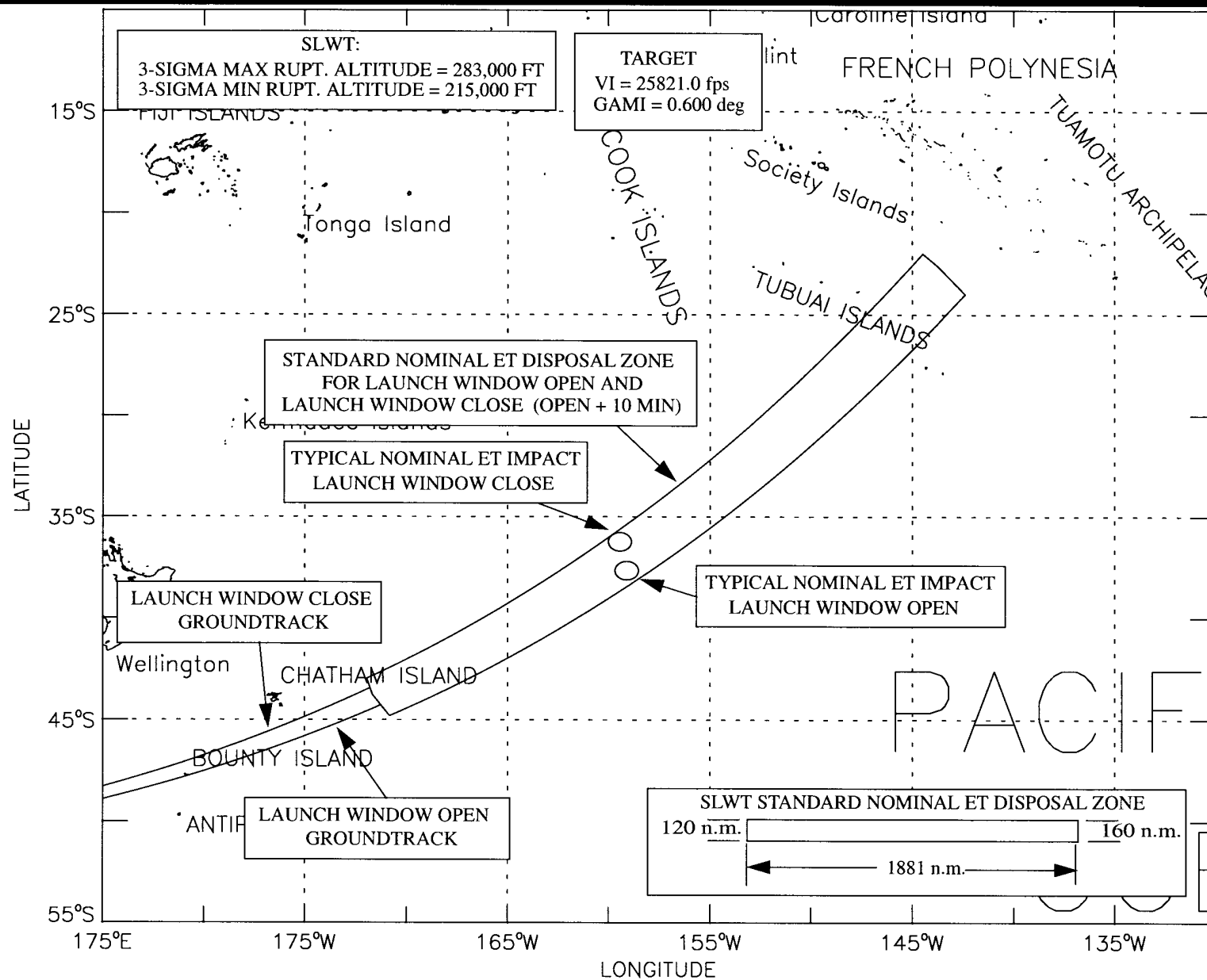


The Last RTLS boundary is based on performance. The late ZZA boundary is limited by the 23k fps inertial velocity at Abort Initiation constraint. The late MRN boundary is based on the 0 +/- 50 degree beta angle constraint. The late BEN boundary is based on performance

Note: Due to inherent assumptions made in its creation, this chart may not accurately depict DOL conditions and intact abort boundaries.

Nominal ET Impact Area

STS-105

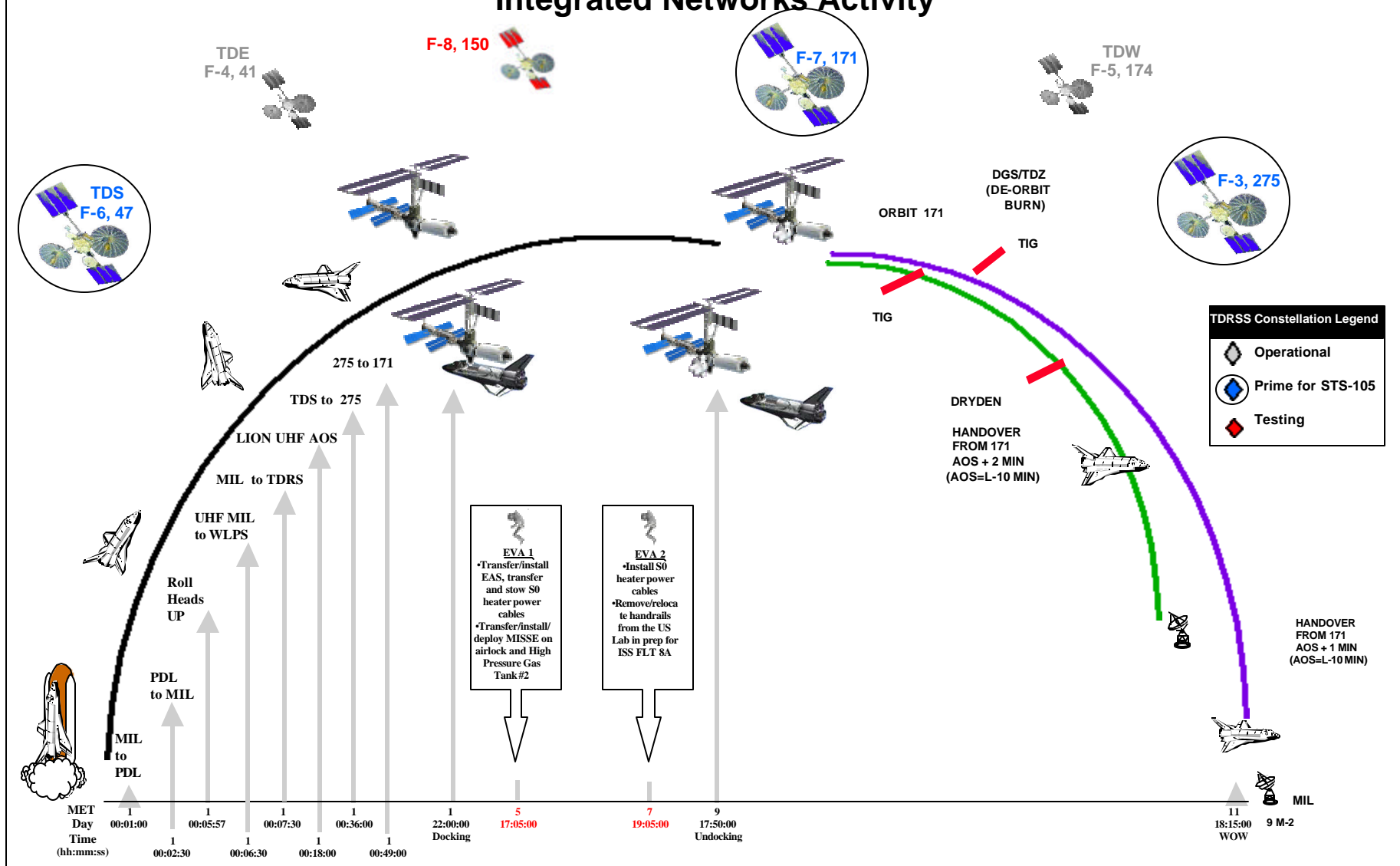




STS-105/ISS 7A.1 FRR Mission Services



Integrated Networks Activity



STS-105/7A.1 FRR/Mod